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SELECTION, DEPLOYMENT, AND
EVALUATION OF MARINE RECRUITERS

by

James T. Bennett
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The purpose of this paper is to investigate the factors which influence the productivity of individual Marine recruiters. The relative importance of (1) characteristics of individuals, (2) geographical assignment, and (3) the deployment patterns of individuals is assessed based on a sample of 259 recruiters at 29 Recruiting Stations. Although 16 variables were included in the study, most were found to have little bearing on recruiter performance. The most important determinant of performance is the propensity to enlist in the recruiting market to which the recruiter is assigned. In areas with low enlistment rates, however, recruiters who have served tours as career planners are more productive than others. Moreover, recruiters who work in areas near their home are likely to have an advantage as is a recruiter who works in an urban/suburban environment instead of in a rural area.

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I. Introduction

Prior to the transition to the all-volunteer military establishment, considerable attention was given to the acquisition of military manpower in the absence of the draft, because draftees and draft-motivated enlistees would no longer provide a source of manpower for the military services. In a zero draft environment, recruiters for each of the services will play an important role in contacting prospects and inducing enlistments by explaining the advantages of military service and by conveying information about education and training programs and the various "guarantees" that the military offers.¹

¹Evidence that the recruiter, acting as a salesman for his branch of service, does play an important part in inducing enlistments is found in a survey conducted for the Department of Defense [3, p.4] in which it was concluded that "American youth attribute considerable influence to the recruiter in the enlistment decision." In an earlier study [2], the authors found that the efforts of recruiters were as important as military pay increases in attracting volunteers.

In view of the importance of the recruiter in the enlistment process, it is surprising that few studies have been directed to the selection, deployment, and evaluation of recruiters.² The need for such research is further highlighted by the decision to increase the number of authorized recruiters for each service. The Marine Corps, for example, was allotted an additional 465 recruiters to supplement their FY 1971 contingent of 1,235 recruiters--a 37 percent increase. The purpose of this research is an empirical investigation of the factors which influence the productivity of individual Marine Corps recruiters. More specifically, we evaluate the importance of (1) individual characteristics, (2) geographical assignment, and (3) utilization patterns in explaining recruiter productivity. The results of this study should be useful in the selection, the deployment, and the evaluation of recruiters in the military sector, and also in the civilian sector.

The second section of this paper contains a discussion of the measure of recruiter performance and the characteristics of recruiters to be considered. The empirical findings are reported in section three; the last section contains a summary and the conclusions.

II. Recruiter Performance and Characteristics

As the measure of performance for each individual recruiter, gross productivity, i.e., the average number of recruits enlisted per month was employed. A sample of 29 recruiting stations (RS) from all sections of the United States provided information on both the number of months on duty for 259 recruiters and the total number of recruits each recruiter had induced to enlist in the

²Only one of the studies [4] of the President's Commission on an All-Volunteer Armed Force was concerned with recruiting. A methodology for the geographical allocation of recruiters was developed by the authors in [1].

Marine Corps during his period of duty.³ The use of gross productivity as a measure of recruiting performance has been discussed elsewhere [1], and as is well-known, this measure does not take into account the quality of recruits. A better measure, perhaps, would be "net productivity" which would indicate the number of recruits induced to enlist by each recruiter who passed basic training. Data, however, were not available for the net measure.

For the characteristics of the individual recruiters, data were obtained from three sources: (1) records of performance at Recruiter School at the Marine Corps Recruit Depot, Parris Island, South Carolina, (2) the Enlisted Master File which contains information on home of record, age, rank, level of education, etc., and (3) a survey of recruiters and their jobs which was conducted by the Office of Manpower Utilization of the Marine Corps at Quantico, Virginia.

The variables employed to measure recruiter characteristics can be subdivided into three categories: selection variables, deployment variables, and evaluation variables. Each category is discussed briefly below.

Selection Variables. These variables are useful in selection of recruiters because the values assigned to these variables are known prior to the time that an individual is sent for training as a recruiter. The selection variables are:

- (1) GCT Score (GCT): An indicator of mental aptitude based on General Classification Test scores. A minimum score of 100 is required;

³The recruiting stations are Baltimore, Philadelphia, Sacramento, Salt Lake City, Portland, Seattle, Houston, New Orleans, Omaha, St. Louis, Detroit, Pittsburgh, Birmingham, Cincinnati, Cleveland, Hartford, Albany, Newark, New York City, San Antonio, Milwaukee, Phoenix, Little Rock, Boston, Buffalo, Des Moines, Jacksonville, Los Angeles, and Macon.

- (2) Age: A male recruiter must be between 21 and 40 years of age;
- (3) Race: White (=0) or non-white (=1);
- (4) Level of education (Education): High school (=0) or more than high school (=1). A high school education or General Educational Development Test Equivalent is required;
- (5) Volunteer: If an individual stated that he asked to be given recruiting duty, the value 1 is assigned, zero otherwise;
- (6) Career Planner: If the individual has previously served in the Marines as a career planner, this variable is assigned a value of 1, zero otherwise;
- (7) Drill Instructor: In the same fashion as for a career planner, if an individual has served a tour of duty as a drill instructor, this variable is given a value of 1, zero otherwise;
- (8) Number of Dependents (Dependents): This variable indicates the number of persons that the recruiter financially supports. For the grade of sergeant, a maximum of 2 dependents including a wife is allowed; for a staff sergeant or above, a maximum of 4 dependents is permitted.
- (9) Financial Hardship (Hardship): A value of 1 is given to this variable if the recruiter believes that his duty is a financial burden, zero otherwise.

Deployment Variables. The purpose of these variables is to determine the effect of geographical location and utilization of recruiters on gross productivity.

- (1) Distance from home of origin: Four distance variables were included in the analysis:
 - (i) Home State: The value 1 was assigned if the location of the recruiting substation (RSS) was in the same state as the home of record of the recruiter, zero otherwise;⁴

⁴A recruiting substation is an office from which a recruiter contacts prospective enlistees, the activities of several substations are directed from a recruiting station.

- (11) 0-250: If the RSS was not in the home state of record, but within 250 miles of the home state, 0-250 was given a value of 1 , zero otherwise;
- (111) 251-500: If the RSS was within 500 miles of the home of record but not in home state, 251-500 was assigned the value of 1 , zero otherwise; and,
- (1v) 500+: The 500+ variable = 1 if RSS was more than 500 miles from home record but not in home state, zero otherwise.
- (2) Type of Area (Area): If the RSS served primarily an urban or suburban area, the variable was given a value 1 , if the area was rural, then the variable was assigned a zero.
- (3) Number of Times Reassigned (Reassigned): This variable denotes the frequency of change of station on the recruiter's current tour of recruiting duty.
- (4) Hours per Week: An estimate of the number of hours per week which each recruiter spent on recruiting duty.
- (5) Time Out of Office: This variable is the percent of each recruiter's time spent outside the recruiting office in performance of recruiting duty.

Evaluation Variables. These variables are used to help in the evaluation of performance on recruiting duty. If all other things are equal with regard to selection and deployment variables, one could expect the observed gross productivity of recruiters to vary with the following variables:

- (1) Months on Recruiting Duty (Time Assigned): The number of months each recruiter has been on his current tour of recruiting duty;
- (2) Percentile Rank in Recruiter Class (Class Rank): Rank of graduation from recruiter school as determined from statistics on performance in recruiter school, e.g., first out of 100 students, places the individual in the ninety-ninth percentile.

The basic objective is to determine the extent to which the variables listed above can explain the differences in productivity among recruiters. A priori, several hypotheses can be advanced. It seems reasonable to assert, for example, that the longer a recruiter has been on duty at a particular station, the higher his productivity. The basis for this reasoning is that as the recruiter becomes acclimated to the environment, he develops useful contacts within the community, learns his area, and becomes efficient as a recruiter. Similarly, it is reasonable to suggest that the more frequently a recruiter is reassigned, the less efficient is his recruiting effort. One would expect that a recruiter who had previously served a tour of duty as a career planner would likely make a better recruiter, because the task of a career planner of "selling the Marine Corps" to potential re-enlistees is similar to presenting the benefits from joining the Corps to a prospective first-term enlistee. In addition, it can be postulated that volunteers for recruiting duty might out-perform recruiters who were ordered to duty. Finally, a recruiter in an urban/suburban area can be expected to be more productive than his rural counterpart, because the recruiter in rural areas is required to spend a much greater proportion of his time traveling between prospects and, in many respects, this time is "wasted" in the sense that he is not actively recruiting as he travels.

A priori hypotheses regarding the effect of the other variables on recruiting performance are difficult to determine, because the effect of these variables are not explicitly clear. For example, the age of the recruiter might influence prospective enlistees in different ways. One prospect might be more influenced by an older recruiter who would give "fatherly advice" about military service; another recruit, however, might prefer a recruiter closer to his own age with whom he could more readily identify. A high rank in percentile of recruiting school class could indicate that a recruiter was motivated toward recruiting duty and would therefore be a productive recruiter; on the other hand, rank in class could also suggest that the recruiter was competent in classroom

work, but this might not carry over to his contacts with recruiting young civilians. The importance of each of these variables in determining recruiting performance must be ascertained from empirical analysis.

III. The Empirical Findings

Not all of the variation in average monthly productivity among recruiters can be attributed to differences in recruiter characteristics. Some areas of the country are more productive than others in that the propensity to enlist is higher. In other words, the enlistment rate, i.e., the ratio of the number of enlistments to the number of males qualified for enlistment, varies by region. For example, in fiscal year 1971, enlistment rates ranged from 9.8 enlistments per 1000 qualified males in the First Marine Corps District (the North East) to 12.7 in the Sixth District (the South East). Other services have similar geographical differences in enlistment rates. The differences in the propensity to enlist can be attributed to such factors as the lack of civilian employment opportunities in some areas and differences in attitudes toward military service. Other variables held constant, one would expect a recruiter in a high enlistment rate area to enlist more individuals than a recruiter in a low enlistment rate area.

On the basis of enlistment rates for 1971, the sample of RS's was broken in half - the first half were the RS's with the highest enlistment rates, the remainder were classified as low enlistment rate areas.⁵ There were 109 recruiters assigned to the high enlistment rate RS's and 150 to the low enlistment rate RS's. The mean values of the characteristics of the recruiters in each group were computed and a statistical test for the differences between areas was performed. The results are shown in Table I. The continuous variables are presented as means (averages); discrete variables, i.e., the variables assigned zero or one values, are expressed as proportions. For example, 8.3 percent of the recruiters in high enlistment areas had more than a high school education as compared to

⁵The following fourteen RS's were considered high enlistment rate areas: Baltimore, Philadelphia, Portland, Houston, New Orleans, Pittsburgh, Cincinnati, Cleveland, Hartford, Albany, San Antonio, Little Rock, Phoenix, and Buffalo.

10.0 percent of the low enlistment area recruiters. The level of significance of the difference between the means (proportions) is shown by plus signs; a + (++) indicates that the difference is too great to be attributable to chance at the 0.05 (0.01) level of significance. If the test statistic has no plus signs, then the difference is not statistically significant from zero.

From Table I, it is evident that the average gross productivity of recruiters in high enlistment rate areas of 4.2 recruits per month is significantly greater than that of recruiters in low enlistment rate areas which average 3.4 recruits per month. Of the 19 variables which could influence recruiter performance, only three distance variables are significantly different between high and low enlistment rate areas. High enlistment rate areas have a much higher proportion of recruiters who are assigned near their home area. For high enlistment rate RS's, 45 percent of the recruiters were assigned to a sub-station which is in the home state of the recruiter and 13 percent of the recruiters work within 250 miles of their home state. Comparable figures for low enlistment rate RS's are 27 and 5 percent, respectively. Moreover, the percent of recruiters whose home state is more than 500 miles from their assigned duty station is significantly lower for high enlistment rate RS's (31.2 percent) than for low enlistment rate RS's (56.0 percent).

These findings are consistent with the conclusion that recruiters like to work in or near their home areas, if the area is a good recruiting market. At recruiter school, each student states his preference regarding duty station. The class is divided into thirds based on class rank. Within the constraint of vacancies, the recruiters are allowed to choose the area in which they recruit. The first individual in the highest third chooses first, the first person in the second third chooses second, and the top man in the lowest third has third choice of geographical assignment. This sequence is repeated until all vacancies are filled. Because recruiters like to work in areas where the recruiting market is good, this selection sequence ensures that the best areas will not get all the top graduates from recruiter school.

TABLE I

TEST FOR THE DIFFERENCES IN MEANS AND
PROPORTIONS OF CHARACTERISTICS OF RECRUITERS IN
HIGH VERSUS LOW ENLISTMENT RATE AREAS

Variable	High Enlistment Rate Areas n=109	Low Enlistment Rate Areas n=150	Test Statistic
<u>Means:</u>	-	-	-
Gross Productivity	4.2	3.4	3.87+ ←
GCT	112.2	113.9	-1.26
Age	31.3	31.0	.49
Class Rank	55.5	53.6	.52
Time Assigned	24.1	24.6	-.25
Dependents	2.3	2.5	-.84
Time out of Office	49.8	46.3	1.41
Hours per Week	58.9	58.1	.53
Reassigned	0.6	0.7	-.34
<u>Proportions:</u>	-	-	-
Race	16.5	8.7	1.92
Home State	45.0	26.7	3.06++ ←
0-250	12.8	4.7	2.38++ ←
251-500	11.1	12.7	-.384
500+	31.2	56.0	-4.38++ ←
Education	8.3	10.0	-.477
Volunteer	57.8	63.3	-.90
Hardship	40.4	35.3	.83
Area	19.3	21.3	-.41
Career Planner	9.2	14.0	-1.18
Drill Instructor	10.1	8.7	.39

In order to determine the magnitude of the effect of each variable on recruiter productivity with other variables held constant, gross productivity was the dependent variable in a multiple regression with all the characteristic variables as regressors. One regression included all recruiters from a high enlistment rate area as observations; a separate regression was run for the recruiters in low enlistment rate areas. Dividing the sample in this manner corrects for the influence of the propensity to enlist on recruiter productivity and permits an assessment of the importance of each characteristic variable in each area. The estimated coefficients are shown in Table II and the level of statistical significance is again denoted by plus signs.

The interpretation of the coefficients is straightforward. For example, in a high enlistment rate area, a recruiter in an urban or suburban substation enlisted, on the average, about .86 men per month more than a recruiter in a rural area. The interpretation of the distance coefficients is slightly different in that they indicate the increase in productivity relative to a recruiter stationed more than 500 miles from his home state, e.g., a recruiter in a high enlistment rate area stationed in his home state, other things equal, enlisted 1.60 men more per month than he would have if stationed more than 500 miles outside his home state.

As is evident from Table II, few of the variables are significantly different from zero in either regression. For recruiters in low enlistment rate areas two of the selection variables are significant at the 0.05 level: the hardship and the career planner dummy variables. Recruiters who have previously served a tour of duty as a career planner recruit .83 more men per month than those who have not. The experience that a career planner obtains in selling the Marine Corps as a career to re-enlistees is good training for recruiting first-term enlistees. The knowledge of programs and opportunities within the service and the ability to communicate them to career prospects is apparently useful on recruiting duty. It also appears that recruiters who regard the duty as a financial hardship enlist about .6 men per month fewer than

TABLE II

ESTIMATED COEFFICIENTS FROM REGRESSION OF
GROSS PRODUCTIVITY ON RECRUITER CHARACTERISTICS
FOR HIGH AND LOW ENLISTMENT RATE AREAS*

Variable	Coefficient	
	High Enlistment Rate Areas n=109	Low Enlistment Rate Areas n=150
GCT	.0004	-.0047
Age	-.0237	-.0335
Class Rank	.0101	-.0023
Time Assigned	.0144	-.0077
Dependents	.0970	-.0037
Time Out of Office	.0144	.0106
Hours per Week	-.0056	-.0094
Reassigned	-.2674+	-.0559
Race	.2581	.3457
Home State	1.6029++	-.0902
0-250	.2265	.0939
251-500	.5498	-.0445
Education	-.0612	-.2493
Volunteer	.5863	-.1700
Hardship	-.0033	-.5900+ ✓
Area	.8596++	.3568
Career Planner	.4876	.8259+ ✓
Drill Instructor	.0672	.2105

*Note that the dummy variable 500+ was not included in the regression because of multicollinearity.

those who do not. None of the selection or deployment variables contribute significantly to the explanation of productivity for recruiters in low enlistment rate areas. The independent variables explain only 12 percent of the variance of recruiter productivity and, therefore, the predictive power of the model is almost nil.

The regression results for high enlistment rate indicate that three of the deployment variables are significantly different from zero at the 0.05 percent level or better. A recruiter in a high enlistment rate area enlists 1.6 more men per month if his substation is located in his home state relative to the recruiter stationed more than 500 miles from his home area. Although the coefficients for the other distance variables are not significantly different from zero, their signs indicate that recruiters closer to their home areas perform better than those far distant. The regression coefficients also indicate that a recruiter in an urban or suburban environment brings in .86 more men per month than his rural counterpart. As was anticipated, performance is negatively influenced by reassignment to a new duty station. It seems clear that the more frequently a recruiter is reassigned, the less effective he is on duty. Yet, care must be taken in interpreting this variable to conclude that recruiters should not be transferred, because the principal reason for reassignment is that the recruiter has failed to produce satisfactorily at his current substation. None of the selection or evaluation variables contributed significantly to the regression and, as was the case for low enlistment rate areas, the predictive power of the model was poor. The independent variables explained only 35 percent of the variance of productivity among recruiters in high enlistment rate areas.

Even though most of the independent variables in both regressions did not appear to be related to recruiter performance, it should not be concluded that these variables have no effect on productivity. Rather, limitations on the data preclude the assessment of the magnitude of the effect of many of the characteristic variables. One reason that some of the variables which were included did not show statistical significance

in the regression is because of the constraints imposed on the values that the variables could assume. Due to the minimum qualifications that must be met by Marine recruiters, the range of variation on some variables is often very small which precludes measuring the influence of the variable on productivity. Consider, for example, the number of dependents. Marine recruiters in the grade of sergeant may have a maximum of 2 dependents (including a wife) and a staff sergeant or above may have a maximum of 4 dependents. The restrictions on dependents are imposed to ensure that recruiters who work in a civilian environment, where they may not have access to services provided by the military at reduced prices, will not find recruiting duty a financial burden. Restrictions are also imposed on age and GCT. In addition, some of the variables are multicollinear which further complicates assessing the statistical significance of the coefficients of the variables in the regression equation.⁶ Because of the high correlation between age and rank, for example, it was not possible to include both characteristics in the regression analysis and rank as a characteristic was dropped entirely.

IV. Summary and Conclusions

On the basis of the results obtained in this study, a number of factors which are generally believed to influence productivity were found to have little bearing on recruiter performance. Additionally, an important aspect of recruiter productivity is beyond management control and that is the nature of the recruiting market. Some recruiting areas are better than others for reasons other than the characteristics of recruiters assigned to the areas. In poor and good recruiting areas, the performance of individuals appears to be only marginally related to the variables employed to explain performance. Although neither of the regressions are adequate for the prediction of individual performance, there is justification for the conclusions that (1) individuals who have been career planners are likely to perform better than average as recruiters; (2) recruiters assigned near their home areas may have

⁶As is well known, multicollinearity increases the standard errors of the coefficients, but does not bias the estimate of the coefficient.

an advantage in recruiting enlistees; (3) a recruiter in an urban or suburban environment will probably be more productive than a recruiter in a rural area; and (4) an individual who finds recruiting a financial hardship generally will be less productive. The study suggests that within recruiting markets increased productivity can be achieved by improved selection and deployment of recruiters.

REFERENCES

- [1] BENNETT, JAMES T., and HABER, SHELDON E. (1972). On the application of Marginal Productivity Analysis to the Allocation of Recruiters Within the Military Services. Technical Paper Serial T-257, Program in Logistics, The George Washington University.
- [2] _____ (1972). The supply of volunteers to the Armed Forces revisited. Technical Paper Serial T-260, Program in Logistics, The George Washington University.
- [3] HUMAN RESOURCES RESEARCH ORGANIZATION (1971). Attitudes of Youth Military Service: Results of a National Survey Conducted in May 1971. Human Resources Research Organization, Alexandria, Virginia.
- [4] KEMP, STEWART W. (1970). "Productivity of U.S. Military Recruiting Systems." In The President's Commission on an All-Volunteer Force, The Report of the Presidential Commission on an All-Volunteer Force IV-4-1. Washington, D.C.: Government Printing Office.

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